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MRI with gadolinium-based contrast injections

Patient information sheet

What is an MRI contrast injection?

Your doctor has asked you to have a magnetic resonance imaging (MRI) scan. You may need an injection of MRI contrast (or gadolinium) as part of this scan.

MRI contrast is a colourless liquid injected into your blood stream during the scan. It will be injected via a small needle (cannula) into a vein in your arm.

The contrast agent improves the quality of the images produced by the scan. This allows the doctor to see your organs and tissues more clearly. This will make it easier for the doctor to make a diagnosis.

Before receiving an MRI contrast injection

The MRI staff will ask you some questions to check the contrast is safe for you. These will be about any allergies, asthma or kidney problems you might have. Women will also be asked if they are pregnant. It is important that you answer these questions so that MRI staff can identify any risks to you.

Before coming in for your MRI scan you may need to have a blood test to find out your kidney function level.

During the procedure

You should not feel any different after the injection. Only a small amount (usually 5-10mL) of MRI contrast agent gets administered. Some people report a cold feeling in the arm during the injection. This is harmless and does not last.

After receiving MRI contrast

MRI contrast does not affect your ability to carry out normal activities. You should be able to continue with your day as normal. Drink plenty of water after the MRI scan to help your kidneys flush the contrast out from your body. If you become unwell during the day after your scan, go to your nearest emergency department or general practitioner (GP).

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Kidney function

The kidneys remove most MRI contrast agents from your blood. People with normal kidney function pass the contrast out into the urine between two to 24 hours after it is injected. If you have an MRI scan of your liver, a different MRI contrast is often given. These contrasts are removed from your blood by your liver, as well as by your kidneys.

People with severe kidney problems rarely have a MRI contrast injection. For these people, there is a risk of a very rare disorder called nephrogenic systemic fibrosis (NFS).[1,2]

What are the risks?

MRI contrast agents are generally very safe. Side effects or adverse reactions are uncommon but can occur. There are three types of adverse reactions:

- **Mild**: Includes headache, feeling sick, dizziness, rash and itching. These are the most common type of reactions and usually go away on their own within an hour.
- **Moderate**: Includes headache, hives, facial swelling, vomiting and throat tightness. Less common
- **Severe**: Includes shortness of breath, severe heart palpitations, very low or high blood pressure, throat swelling, fits or cardiac arrest. These reactions are very rare.[1]

Very rarely, injected MRI contrast may leak outside of the vein, under the skin and into the tissue. This may cause pain and swelling in the area, requiring treatment.

Recent research shows very small amounts of some MRI contrast agents stay in the body tissue. At this stage, there are no known adverse effects from this. The radiologist will only use these contrasts when they will help the doctor make a diagnosis.

Pregnancy

There are no known adverse effects to fetuses. Pregnant women will only receive a contrast agent if it will assist the doctor to make a diagnosis.

Breastfeeding

Studies show only trace amounts of contrast makes its way into the breast milk. It is safe to continue normal breastfeeding after the MRI contrast agent injection. There is no need to express and discard breast milk or to withhold breastfeeding.

References

1. Fraum TJ, Ludwig DR, Bashir MR, et al. Gadolinium-based contrast agents: A comprehensive risk assessment. J Magn Reson Imaging. 2017;46(2):338-53.

2. The Royal Australian and New Zealand College of Radiologists. Guideline on the use of Gadolinium-containing MRI contrast agents in patients with renal impairment [Internet]. Sydney; RANZCR: 2019 [cited 24 September 2021]. Available from: https://www.ranzcr.com/college/document-library/gadolinium-containing-mri-contrast-agents-guidelines

Further information

Inside Radiology by the Royal Australian and New Zealand College of Radiologists: https://www.insideradiology.com.au/gadolinium-contrast-medium/

A range of patient resources about MRI are available from MRIsafety.com from Dr Frank Shellock:http://www.mrisafety.com/SafetyInformation_list.php?qs=gadolinium

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